

**ABSTRACT**

A CMP station can be closed loop controlled by using data obtained by an inline metrology station from a first polished wafer to affect the processing of subsequent polished wafers. The first wafer is polished and measured by the inline metrology station. The metrology station measures at various points the array dielectric thickness, field dielectric thickness, barrier residue thickness and metal residue thickness. The data is then inputted into an algorithm and polishing parameter outputs are calculated. The outputs are sent to the CMP station and used to supplement or replace the previous polishing parameters. Subsequent wafers are polished on the CMP station using the revised polishing parameters.

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